

CLAIM LISTING

1. (Original) Silane cross-linked polyolefin tubes which are intended for drinking water and/or water for industrial use, which are resistant to a chlorine content between 0.1 and 5 ppm, which are made according to the single-stage process and which have a minimum cross-linking degree of 60%.
2. (Original) The silane cross-linked polyolefin tubes as defined in claim 1, characterized in that the polyolefin composition comprises
 - (A) a polyolefin,
 - (B) a mixture of an organic silane of the general formula RSiX_3 with
 - (B1) a radical-generating constituent (B2) and a catalyst (B3), and with
 - (C) a stabilizer mixture of a high melting point, high-molecular phenolic constituent (C1) with a sulfur-containing constituent (C2), a phosphorus-containing processing stabilizer (C3) and a metal deactivator (C4).
3. (Original) The silane cross-linked polyolefin tubes as defined in claim 2, characterized in that the constituent (A) is selected from the group of low-pressure polyethylenes (HDPE) having a degree of crystallinity between 60 and 80% and a density from 0.942 to 0.965 g/cm³ or a polyethylene having a mean density of 0.930 to 0.942 g/cm³ (MDPE).
4. (Original) The silane cross-linked polyolefin tubes as defined in claim 2, characterized in that the organic silane of the general formula RSiX_3 (B1) of the constituent (B) is selected from the group of vinyltrimethoxysilane, vinyltriethoxysilane or 3-(methacryloxy)propyltrimethoxysilane.
5. (Original) The silane cross-linked polyolefin tubes as defined in claim 2, characterized in that the radical-generating constituent (B2) of the constituent (B) is selected from the group of alkylperoxide, acylperoxide, ketoneperoxide,

hydroperoxide, peroxocarbonate, perester, peroxoketal, and/or peroxooligomers, particularly from the group of alkylperoxide.

6. (Original) The silane cross-linked polyolefin tubes as defined in claim 2, characterized in that the radical-generating constituent (B2) of the constituent (B) is an azo compound.
7. (Original) The silane cross-linked polyolefin tubes as defined in claim 2, characterized in that the radical-generating constituent (B2) of the constituent (B) is an organic alkylperoxide having a half-value time of 0.1 hour at temperatures > 80°C.
8. (Currently amended) The silane cross-linked polyolefin tubes as defined in ~~claims~~ claim 2 and 7, characterized in that the organic alkylperoxide is selected from the group of 2,5-dimethyl-2,5-di(tertiary-butylperoxy)hexane and/or 2,5-dimethyl-2,5-di(tertiary-butylperoxy)3-hexine and/or di(tertiarybutyl)peroxide and/or 1,3-di(tertiary-butyl-peroxyisopropyl)benzol and/or dicumylperoxide and/or tertiary-butylcumylperoxide.
9. (Original) The silane cross-linked polyolefin tubes as defined in claim 2, characterized in that the catalyst (B3) of the constituent (B) is selected from the group of dibutyltindilaurate, dibutyltinoxide, tin octoate, dibutyltinmaleate or titanylacetate.
10. (Original) The silane cross-linked polyolefin tubes as defined in claim 2, characterized in that the high melting point, high-molecular phenolic constituent (C1) of the constituent (C) is selected from the group of 2,2'-methylenebis(6-tertiary-butyl-4-methylphenol), 1,3,5-trimethyl-2,4,6-tris(3,5-di-tertiary-butyl-4-hydroxybenzyl)benzol, octadecyl-3-(3,5-di-tertiary-butyl-4-hydroxyphenyl)propionate, 1,1,3-tris(2-methyl-4-hydroxy-5-tertiary-butylphenyl)butane, tris(3,5-di-tertiary-butyl-4-hydroxybenzyl)isocyanurate,

tris(4-tertiary-butyl-3-hydroxy-2,6-dimethylbenzyl)isocyanurate, pentaerythritoltetrakis(3,5-di-tertiary-butyl-4-hydroxyhydrocinnamate) or 1,3,5-tris(3,5-di-tertiary-butyl-4-hydroxybenzyl)triazine.

11. (Original) The silane cross-linked polyolefin tubes as defined in claim 2, characterized in that the sulfur-containing constituent (C2) of the constituent (C) is selected from the group of 5-tertiary-butyl-4-hydroxy-2-methylphenylsulfide, 3-tertiary-butyl-2-hydroxy-5-methylphenylsulfide, dioctadecyl-3,3'-thiodipropionate, dilauryl-3,3'-thiodipropionate or ditetradecyl-3,3'-thiodipropionate.
12. (Original) The silane cross-linked polyolefin tubes as defined in claim 2, characterized in that the phosphorus-containing processing stabilizer (C3) of the constituent (C) is selected from the group of tris(nonylphenyl)phosphite, tris(2,4-di-tertiary-butylphenyl)phosphite, tetrakis(2,4-di-tertiary-butylphenyl)-4,4'-biphenyldiphosponite, 3,9-bis(octadecyloxy)-2,4,8,10-tetraoxa-3,9-diphosphaspiro[5.5]undecan or 3,9-bis(2,4-dicumylphenoxy)-2,4,8,10-tetraoxa-3,9-diphosphaspiro[5.5]undecan.
13. (Original) The silane cross-linked polyolefin tubes as defined in claim 2, characterized in that the metal deactivator (C4) of the constituent (C) is selected from the group of 1,2-bis(3,5-di-tertiary-butyl-4-hydroxyhydrocinnamoyl)hydrazide, or 2,2'-oxalyldiamidobis-(ethyl-3-(3,5-di-tertiary-butyl-4-hydroxyphenyl)propionate) or oxalic bis(benzylidenehydrazide).
14. (Original) The silane cross-linked polyolefin tubes as defined in claim 2, characterized in that the weight part of constituent (B), related to constituent (A) is between 0.1 and 5 parts, particularly between 1 and 3 parts.

15. (Original) The silane cross-linked polyolefin tubes as defined in claim 2, characterized in that the weight part of constituent (C), related to constituent (A) is between 0.1 and 5 parts.
16. (Original) The silane cross-linked polyolefin tubes as defined in claim 2, characterized in that up to 20 weight parts of additives, related to constituent (A), are added in the form of up to 5 weight parts of lubricating or processing agents, up to 5 weight parts of nucleation agents, up to 5 weight parts of antistatic agents, up to 10 weight parts of processing oils, up to 10 weight parts of pigments, up to 5 weight parts of expanding agents or up to 5 weight parts of ultraviolet stabilizers.
17. (Original) The silane cross-linked polyolefin tubes as defined in one of the preceding claims, characterized in that the tube has a cross-linking degree in the range of 60 to 89%, particularly between 65 and 75%.
18. (Currently amended) A method of making a silane cross-linked polyolefin tube as defined in claim 1 ~~one of the preceding claims~~, characterized in that the graft reaction of the silane of the constituent (B1) on the polyolefin of the constituent (A) as well as the shaping proceed simultaneously in the course of one processing step, while utilizing a barrier screw and/or a fusion pump, thereafter the tubes are stored in a cross-linking chamber in a water vapor atmosphere at 80-100°C until a cross-linking degree in excess of 60% is reached and, lastly, a tempering step occasionally follows at temperatures between 70 and 95°C until the desired, application-dependent degree of ~~crystallinity~~ crystallinity is reached.
19. (Currently amended) Tubes ~~Use of the silane cross-linked tubes according to one of the preceding claims for making tubes~~ for drinking water and/or water for industrial use, said tubes comprising the silane cross-linked tubes of Claim 1.